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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/055,094 | 01/23/2002 | Il Kwon Shim | ST01-006 | 8095 |

28112 7590 07/23/2003

GEORGE O. SAILE & ASSOCIATES
28 DAVIS AVENUE
POUGHKEEPSIE, NY 12603

EXAMINER

ESTRADA, MICHELLE

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2823

DATE MAILED: 07/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/055,094

Applicant(s)

SHIM ET AL.

Examiner

Michelle Estrada

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 11-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 6-8 is/are rejected.
- 7) ☒ Claim(s) 4,5,9 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I (claims 1-10) in Paper No. 5 is acknowledged. The traversal is on the ground(s) that the field of search must necessarily cover both Group I and Group II class and subclass, and the Examiner's suggestion about the combination not needing the particulars of the subcombination is speculative and has nothing to do with the claims as presented in the present application. This is not found persuasive because the Examiner has given reasons for the combination not needing the particulars of the subcombination, thus leading the claims to two different inventions.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Tosaya et al. (6,538,320).

Tosaya et al. Disclose providing a substrate for a PBGA package, said substrate having been provided with heat spreader anchor posts (116) over the surface thereof, said heat spreader anchor posts being separated by a first distance; providing a heat spreader (102) for a PBGA package, said heat spreader comprising: a horizontal portion, being parallel with the surface of said substrate of said PBGA package; heat spreader stand-off features (108)(See fig. 4); said heat spreader stand-off features having a contact surface providing contact between said heat spreader and said substrate; said contact surface of said heat spreader stand-off features having been provided with openings (110) there-through; and said openings provided through said contact surfaces being separated by a distance of said first distance; aligning said anchor posts provided over the surface of said substrate with said openings provided through said contact surfaces of said stand-off features of said heat spreader; and inserting said anchor posts provided over the surface of said substrate into said openings provided through said contact surfaces of said stand-off features of said heat spreader, creating anchor posts protruding through said openings provided through said contact surfaces (Col. 2, lines 43-67); said anchor posts comprising deposits of thermally and electrically conductive material, said thermally and electrically conductive material having been cured after deposition thereof (Col. 3, lines 42-44).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tosaya et al. as applied to claims 1 and 2 above, and further in view of Panchou et al. (6,218,214).

Tosaya et al. do not disclose that said anchor posts comprise an epoxy to which traces of silver have been added; said anchor posts having been created applying method of dispensing of electrically and thermally conductive material; said anchor posts having been created applying methods of solder bump.

Panchou et al. disclose that said anchor posts (26) comprise an epoxy to which traces of silver have been added; said anchor posts having been created applying method of dispensing of electrically and thermally conductive material; said anchor posts having been created applying methods of solder bump (Col. 4, lines 13-20).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Tosaya et al. and Panchou et al. to enable formation of the anchor posts.


Allowable Subject Matter

Claims 4, 5, 9 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Estrada whose telephone number is (703) 308-0729. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


George Fourson
Primary Examiner
Art Unit 2823


MEstrada
July 8, 2003